wound of the thigh, had become exhausted from several attacks of erysipelas and long-continued fever. In the midst of the fever, he was left continuously on a veranda, with the naked limb exposed to the air and sun. In two days the temperature had fallen to normal and the erysipelas had disappeared. He recovered rapidly but after a longer interval than usual had a recurrence of the erysipelas. This attack, however, was of much shorter duration than the preceding ones, which were much more severe.

The Effect of the Pointed Bullet on the Shaft and Ends of the Bone.—MACKOWSKI (*Deutsch. Ztschr. f. Chir.*, 1916, cxxxvii, 403) says that extensive splintering was found most frequently in the shaft and usually in what is termed the butterfly figure. This resulted when the bullet struck about midway in the width and length of the bone. When it struck the shaft in the middle of its width and near the epiphyseal end, the fragments lying toward the middle of the shaft were longer than toward the epiphyseal end, which often broke off transversely. When the bullet so hit the shaft as to divide it into two unequal parts, the larger fragment broke into large fragments and the smaller into smaller fragments. The stronger and thicker the shaft, the larger were the fragments. In fractures of the shaft of the femur the fragments were larger than in fractures of the shafts of the smaller bones, as the forearm and leg. Fractures of the shaft without division of continuity occurred almost always in the slender forearm and leg bones. They were not observed in the humerus or femur. The most frequent fracture of the femoral shaft is the large splintered oblique fracture with long pointed fracture ends. Transverse fractures were seen almost only in the shaft of the humerus. The humeral head was usually bored through without splintering, although in some cases small splinters occurred.

Gunshot Wounds of Peripheral Nerves.—STOOKLY (*Surg., Gynec. and Obst.*, 1916, xxiii, 639) based his paper on a study of 75 cases of nerve injuries, observed in the present war in the British Military Service. He says that peripheral nerves may be injured by projectiles, pieces of bone or foreign bodies, and may be implicated secondarily by scar tissue, or callus, or both. Diagnosis cannot be made before operation between anatomical and physiological division. Diagnosis can usually be made in cases with incomplete division. In war surgery primary suture is rarely possible due to infection. Operation is indicated when complete division is diagnosed. Nerve freeing is in many cases to be preferred to excision and suture. When the nerve is widely implicated and there is a large loss of continuity, it is better to do nerve transference or nerve transplantation than tubulization or suture with the nerve under tension. Stretching of the nerve should not be done as it causes karyolysis of the nerve cells in the anterior horn with subsequent degeneration of the nerve axon in the proximal nerve trunk. Efficient splinting to prevent contractures and overstretching of the muscles is imperative, both before and after operation. The musculospiral nerve injured in its lower third does show loss of sensation on a narrow band over dorsum of thumb, usually only loss to cotton-wool and temperature sense. Injury to the musculospiral

may cause dissociation of temperature sense in the area on the dorsum of the hand—without loss to cotton-wool. Return of motor function begins with the muscles which first receive their supply below the lesion. The return is earlier the nearer the lesion to the periphery. Trophic ulcers occur only after trauma. Their repair appears to be no different than in other parts.

A Study of Exstrophy of the Bladder.—STEVENS (*Surg., Gynec. and Obst.*, 1916, xxiii, 702) presents a study of the literature and reports a case five years after implantation of the ureters into the rectum. He reported the patient at work, in perfect health, and changed from a wretched, dejected, lonely boy to a bright and happy lad with a real interest in life. Stevens emphasizes the wisdom of a careful preliminary examination of the kidneys before any operation is undertaken on a case of exstrophy of the bladder. The operation is clearly indicated if there be no severe renal infection. Methods which effect no control of the urine offer but little comfort to the patient. The simpler procedures that do provide a sphincter are to be preferred. The newer methods which form an extra-intestinal, perineal channel, lined with epithelium and controlled by the sphincter ani, have not been sufficiently tested clinically. The author believes that uretero-intestinal anastomoses offer the exstrophy patients the best outlook at the present time. The subject is intimately associated with bladder exclusion for other ailments, and the problem of control of ascending infection is deserving of all the experimental and clinical work being done. Bergenheim's operation is the best for this condition. It consists essentially of the independent extraperitoneal implantation of the ureters, each with a rosette of bladder-wall, into the rectum, with removal of the bladder. Preservation of the ureteral sphincter is worth while, whether it acts as a valve or sphincter or whether its preservation merely offers a more circuitous and less likely route for ascending infection to follow in order to reach the ureteral lymphatics.

Direct Neurotization of Paralyzed Muscles.—STEINDLER (*Am. Jour. Orthop. Surg.*, 1916, xiv, 707) studied experimentally on dogs the Heineke idea of the possibility of implanting peripheral nerves directy into paralyzed muscles. Heineke maintained that motor impulses can in this way be directly transmitted to the muscle. A further step was taken by Erlacher in maintaining the possibility of neutralizing the paralyzed muscles by means of direct contact between normal and paralyzed muscle, and without the implantation of the peripheral nerve. The author found that direct neurotization, in the sense of Heineke and Erlacher, is indeed possible. The natural limits of physiological regeneration allows motor nerve, directly implanted into paralyzed muscle tissue, to establish by regeneration the entire chain of neurometer connections. From the experiments it appears that this regeneration becomes complete in from eight to ten weeks after the implantation. In close succession to the regeneration of nerve tissue the muscle tissue also regenerates, and this becomes manifest in the reappearance of the normal contours of the fibers and the normal striations. Physiological test of the reneurotized muscles also show that regeneration of the muscle takes place centrifugally from the